
Space Weather Forecast

Issued on Thursday, 13 June 2024 at 00:03 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of isolated Moderate flares (R1-R2 radio blackouts). Chance of Minor solar radiation storm (S1) initially, this risk declining into the period.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Moderate, with an isolated M1.2 at 12/2246 UTC attributed to a small region near the south-centre disc. There are currently ten sunspot regions on the visible disc, three of which are unnumbered regions developing in the northeast. The region located in the center south of the visible disc is now considered to be a nature region, consisting of a single leader followed by smaller trailing spots and a relatively extensive plage. The region appears to be inactive, with little development. The largest regions are in the southeast. Both have recently rotated onto the visible disc and while the one closest to the eastern limb appears to be the largest of the two, the other one is showing greater potential, with rapid development and increasing complexity. The other regions are relatively small and simple.

A filament eruption was observed around 12/1200 UTC in the southeast. The associated CME may have an Earth-directed component however there is currently no available imagery to do the analysis. No other Earth-directed CMEs have been observed in the past 24 hours.

Solar Wind / Geomagnetic Activity: Solar winds were indicative of a slow regime. The speed was stable and slow-ambient, around 350km/s through the period. The IMF (Interplanetary Magnetic Field) was weak and unremarkable throughout, with only small deviations in the important north-south component. Geomagnetic activity was Quiet (Kp 0-1) as a result.

Energetic Particles / Solar Radiation: The high energy (greater than 10 MeV) proton flux rose following a far-sided CME, almost reaching S1/Minor solar radiation storm levels. Levels have since levelled off but remain close to the S1 threshold, with no sign of abating.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a chance of isolated Moderate flares, with just a slight chance of isolated Strong flares initially, these most probably from the large region recently rotated around the southwest limb in the near term. The flare risk reduces into the period pending further developments.

Solar Wind / Geomagnetic Activity: Overall, solar winds are expected to remain mostly at background levels, with no significant enhancements, and geomagnetic activity to remain predominantly Quiet with a chance of Unsettled intervals.

Energetic Particles / Solar Radiation: Solar radiation is currently close to S1/Minor solar radiation storm levels, but is expected to ease over the coming day. A chance of further S1 enhancement is maintained for Day 1 (13 Jun), before the risk eases into the period.

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Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	Yes	30	30	30	30
Very Active	R3 to R5 X	No	10	5	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	40	15	5	5
Very Active	≥ S3 *	No	5	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)